DOCUMENT RESUME

ED 286 867 SP 029 441

TITLE	Target Forecast. Public School Teachers.
INSTITUTION	Center for Education Statistics (OERI/ED), Washington, DC.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE	Sep 87
NOTE	3p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Elementary School Teachers; Elementary Secondary Education; *Employment Projections; *Public School Teachers; Secondary School Teachers; *Teacher Supply and Demand

ABSTRACT

This report forecasts an increase in the number of public school teachers from 1986 to 1987, with a decrease in the number of secondary school teachers. The 5-year outlook for 1987 to 1991 predicts the continued decline in numbers of secondary school teachers through 1989 with an anticipated increase thereafter. Elementary school teachers are predicted to increase in number throughout the 5-year period. A table showing figures for 1985 and 1986 and forecasts for the years from 1978 to 1991 is included. A chart comparing number of public school teachers with student enrollment from fall 1970 to fall 1985 with projections for the period between 1986 and 1991 is provided. Technical notes describe the methodology of the forecast and sources of data, and discuss forecast accuracy. (MT)

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TARGETED FORECAST

U.S. Department of Education • Office of Educational Research and Improvement

Center for Education Statistics

ED286867

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September 1987

Public School Teachers

This forecast of public school teachers is part of a new series issued by the Center for Education Statistics (CES). The purpose is to develop 5-year projections of key education statistics and also highlight projected data for the coming school term. These forecasts are particularly targeted for individuals in business, industry, government, the media, and education whose work requires information on projected developments and trends affecting American education. Subsequent editions of Targeted Forecasts of Public School Teachers will be published each year. Other Targeted Forecasts will be issued on earned degrees conferred, enrollments, and high school graduates.

—Emerson J. Elliott, Director
Center for Education Statistics

Number of Public School Teachers Projected to Increase This Fall

Highlights

1987 Teachers

- The Center for Education Statistics (CES) forecasts that 2.5 percent more teachers will instruct students in public elementary and secondary schools this fall than in 1986.
- The number will increase from the estimated 2.234 million teachers last fall to 2.291 million teachers in 1987.
- While the number of elementary teachers is forecast to increase by 58,000 the number of secondary teachers will decrease by nearly 2,000.

5-Year Outlook

- The number of public secondary school teachers, which had been increasing for the past 4 years, is projected to decrease through 1989. After this, the number of secondary school teachers is expected to increase again, anticipating the projected increase in secondary enrollment from fall 1990 to fall 1991.
- CES forecasts that the number of public elementary school teachers will increase throughout the period 1987 to 1991, reflecting the rising number of elementary school pupils.

Forecast

Public school teachers, with forecasts: 1985 to 1991

	Year (fall)	Public School Teachers		
		Total	Elementary	Secondary
Actual	1985	2,210,425	1,239,293	971,132
Preliminary	1986	2,234,418	1,261,594	972,824
Forecast	1987	2,291,000	1,320,000	971,000
	1988	2,322,000	1,364,000	958,000
	1989	2,358,000	1,407,000	951,000
	1990	2,407,000	1,452,000	955,000
	1991	2,468,000	1,493,000	975,000

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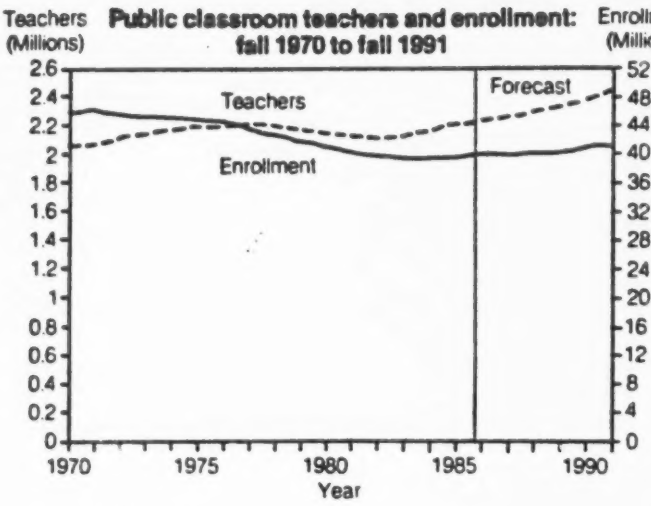

Technical Notes

Methodology

The number of public school teachers was forecast separately for the elementary and secondary levels. For each level the number of teachers per 1,000 pupils was forecast using double exponential smoothing. These forecasts were then multiplied by forecasts of enrollment to produce the school teacher projections.

This model assumes that recent trends in the teacher per 1,000 pupil ratio will continue for the next 5 years. Since the model depends only on past values of this ratio, no explicit assumptions can be made about factors (e.g., relative teacher salaries, working conditions, and class size policies) presumed to affect the ratio. However, the assumption that the combined effect of all factors affecting this ratio will remain the same as in the recent past is implicitly included in the assumption of continuance of past trends in the teacher per 1,000 pupil ratio.

Enrollment is by organizational level, not by grade level. Thus secondary enrollment is not equal to grade 9 - 12 enrollment. This is because some States count some grade 7 and 8 enrollment as secondary.

Sources of Data

The total number of public school teachers and enrollment by organizational level used in these forecasts were obtained from the Common Core of Data (CCD) survey conducted by the U.S. Department of Education, Center for Education Statistics. The proportion of teachers by organizational level was obtained from the National Education Association and then applied to the total number of teachers from CCD to produce the number of teachers by organizational level. No comparable time series of this type exists for private schools, thus forecasts of private school teachers could not be calculated.

Forecast Accuracy

Mean absolute percent error (MAPE) was used to measure forecast accuracy. On the average, based on 14 sets of forecasts, the MAPE for 1 year ahead projections of public school teachers was 0.9, for 2 years ahead it was 1.5, and for 5 years ahead it was 3.7. An analysis of projection errors was conducted by CES in 1984. This paper is available on request.

Acknowledgments

The Center acknowledges the contributions of the reviewers of this targeted forecast, Vance Grant of Information Services and Charles Cowan and Mary Batcher of the Center for Education Statistics, Office of Educational Research and Improvement, for their efforts.

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